AUTHORS: Sayadyan, A.G. and Akopyan, A.Ye. SOV/80-59-1-42/44

TITLE: Production of Anhydrous Sodium Acetate From the Methanol-Water Solution of Methyl Acetate (Polucheniye bezvodnogo atsetata natriya iz vodno -metanol'nogo rastvora metilatsetata)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Nr 1, pp 253-255 (USSR)

ABSTRACT: At the present time the methanol-water solution of methyl acetate is treated with caustic soda, and the weak impure anhydrous solution of the sodium acetate, which remains after distillation of methanol, is lost because of being discarded into a sewer system. The authors propose a new method for the regeneration of the methanol-water solution of the methyl acetate which makes it possible to obtain the pure sodium acetate. The essence of this method, as differed from the practised one, consists in that the mixture of the methyl acetate and methanol, and not the methanol-water solution of methyl acetate, is subjected to the process of saponification. The proposed method can be employed on the existing installations for methanol regeneration in the production of the polyvinyl butyral.

Card 1/2

Production of Anhydrous Sodium Acetate From the Methanol-Water Solution of Methyl Acetate

There are: 1 table and 1 German reference.

ASSOCIATION: Yerevanskiy politekhnicheskiy institut (Yerevan Polytechnic Institute)

SUBMITTED: May 8, 1957

AKOPYAN, A.Ye.; ORDYAN, M.B.; KHUDOYAN, K.L.; KHMKHDZHYAN, S.P.

Synthesis of n-butyl alcohol from 1,3-dichloro-2-butene. Zhur. prikl. khim. 33 no.9:2146-2148 S '60. (MIRA 13:10)
(Butyl alcohol) (Butene)

AKOPYAN, Akop Yervandovich; ARUTYUNYAN, S.B., red.; GALSTYAN, V., tekhn. red.

[Synthetic fibers with a base of polyvinyl alcohol]Sinteticheskoe volokno na osnove polivinilovogo spirta. Erevan, Armianskoe gos. izd-vo, 1961. 107 p. (MIRA 15:11)
(Textile fibers, Synthetic)
(Vinyl alcohol polymers)

AKOPYAN, A.Ye.; MARKOSYAN, D.Ye.

Preparation of a spinning bath based on polyvinyl alcohol. Khim. volok.no.1:10-12 '63. (MIRA 16:2)
(Textile fibers, Synthetic) (Vinyl alcohol polymers)

L 12865-63 EPF(c)/EWT(m)/BDS Pr-4 RM/WW.
ACCESSION NR: AP3002635 S/0171/63/016/003/0241/0245 60

AUTHOR: Akopyan, A. Ye.; Ordyan, M. B.; Ekmekdzhyan, S. P.; Belyayeva, G. M.

TITLE: Production of hexyl alcohols

SOURCE: AN ArmSSR. Izv. Khimicheskiye nauki, v. 16, no. 3, 1963, 241-245

TOPIC TAGS: chlorohexadienol hydrogenation, Raney nickel, normal alcohol, secondary hexyl alcohol, normal hexanol

ABSTRACT: The hydrogenation of chlorohexadienol in the presence of Raney nickel to form normal and secondary hexyl alcohols was investigated with respect to effects of pressure (2-10 atm.), temperature (25-50C), and hydrogenation medium (hexanol, methanol). Optimum conditions for obtaining normal hexanol in almost 94% yield were: use of 1% by weight of product of Raney nickel at 25C and 10 atm. in hexanol with 1 : 1 ratio of solvent to chlorohexadienol.

ASSOCIATION: Laboratoriya polimerizatsionny*kh protsessov Armniikhimproyekta (Laboratory of Polymerization Processes, Armniikhimproyekt)

SUBMITTED: 09Mar63 DATE ACQ: 12Jul63 ENCL: 00
SUB CODE: 00 NO REF SOV: 007 OTHER: 013

Card 1/1

L 11079-63 EWP(j)/EWT(m)/ES(s)-2/ES(w)-2/EDS AFFTC/ASD/SSD Pe-5/
Pt-4/Pab-4 RM
ACCESSION NR: AP3000649 S/0080/63/036/003/0617/0622

AUTHOR: Akopyan, A. Ye.; Midzhiferdzhyan, E. S. 15 13

TITLE: Poly(vinyl formal) film

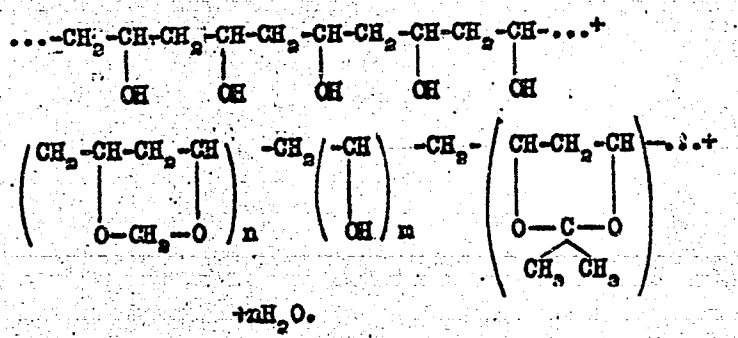
SOURCE: Zhurnal prikladnoy khimii, v. 36, no. 3, 1963, 617-622

TOPIC TAGS: poly(vinyl formal) film, polymerization, acetalization, Agerite White, Nomex ExN, antioxidant, thermal stability, electric insulation

ABSTRACT: A new method has been developed for the preparation of poly(vinyl formal) (I) film 0.01 to 0.1 mm thick, viz., casting from an 18 to 20% aqueous solution of poly(vinyl alcohol) with a degree of polymerization of 800 to 2500, followed by acetalization of the film with formaldehyde in acetone in the presence of 0.3 to 0.6% HCl, according to the reaction shown in the formula (see Card 2/3). To determine the optimal conditions, the effects on acetalization of catalyst concentration, temperature, and reaction time were studied. The following optimal acetalization conditions were established: reaction time, 1 hr; temperature, 50C; HCl and formaldehyde concentrations, 0.5 and 5%, respectively. The degree of polymerization of poly(vinyl alcohol) had little effect on the strength of I. A film with a degree of acetalization of 60 to 70%, prepared

Card 1/3

L 11079-63
ACCESSION NR: AP3000649



under optimal conditions in acetone, had a tensile strength of 800 to 1200 kg/cm^2, a tan Δ of 0.02 at 10^6 cps and 20 + or - 5C, a dielectric constant of 3.5 to 4.0 at 10^6 cps, a mean breakdown voltage of 80 to 100 kv/mm, and a water absorption of 5 to 7% in 48 hours. Polymer I retains its elasticity for 12 to 18 hr at 200C but after heating for 2 to 3 days at 150C loses it and becomes brittle, and its dielectric and mechanical properties deteriorate. The latter phenomena were postulated to be due to slow oxidation by the O_2 of the air, leading to the degradation of I by a free-radical mechanism. Stabilization of I was

Card 2/3

L 11079-63
ACCESSION NR: AP3000649 2

attempted by treatment with 1.5 to 10% solutions of various anticoxidants in acetone, followed by drying at 30C and testing for heat resistance by heating at 150C to the onset of brittleness. Among the anticoxidants used, Agerite White and "Nonex Extra" were found to be the most effective; their ability to render I thermally stable did not depend on the duration of treatment. Because of its good mechanical and dielectric properties, I can be used as an electric insulation material. Orig. art. has: 3 figures and 1 formula.

ASSOCIATION: none

SUBMITTED: 02Nov61 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: CH NO REF SOV: 001 OTHER: 007

Card 3/3

AKOPYAN, A.Ye.; BOSTANDZHYAN, R.Kh.

Hydrolysis of polyvinyl acetate. Zhur. prikl. khim. 36 no.5: 1085-1090 My '63. (MIRA 16:8)

(Vinyl acetate polymers) (Hydrolysis)

AKOPYAN, A.Ye.; ORDYAN, M.B.; EKMEKDZHYAN, S.P.; BELYAYEVA, G.M.

Preparation of hexyl alcohols. Izv. AN Arm.SSR. Khim.nauki. 16 no.3: 241-245 '63. (MIRA 17:2)

1. Laboratoriya polimerizatsionnykh protsessov Armnilkhimproyekta.

ACCESSION NR: AP4020517 S/0171/64/017/001/0103/0106

AUTHOR: Akopyan, A. Ye; Ordyan, M. B.; Ekmekdzhyan, S. P.; Belyaeva, G. M.

TITLE: Nitration of polyvinyl alcohol

SOURCE: AN ArmSSR. Izv. Khimicheskiye nauki, v. 17, no.1, 1964, 103-106

TOPIC TAGS: nitration, polyvinyl alcohol, polymerization degree, sulfuric acid, polyvinyl nitrate, nitric acid

ABSTRACT: The nitration of polyvinyl alcohol was studied for the purpose of developing optimum yield and safety conditions. Two specimens of polyvinyl alcohol were used with molecular weights of 925 and 1275 respectively. The presence of sulfuric acid (1-10%) in the nitrating compositions suppresses oxidation and permits an increased yield. The optimum conditions of nitration which were determined are: a) ratio of polyvinyl alcohol and nitrating compositions is 1:25; b) duration of nitration is 60 minutes; c) processing temperature is from -5 to 10C; and d) ratio of reaction mixture and water for precipitation of polyvinyl nitrate is 1:0.5. Orig. art. has: 3 tables

Card 1/2

ACCESSION NR: AP4020517

ASSOCIATION: Laboratoriya polimerizatsionny*kh protsessov Armniikhimproyekta (Laboratory of Polymerization Processes, Armniikhimproyekta)

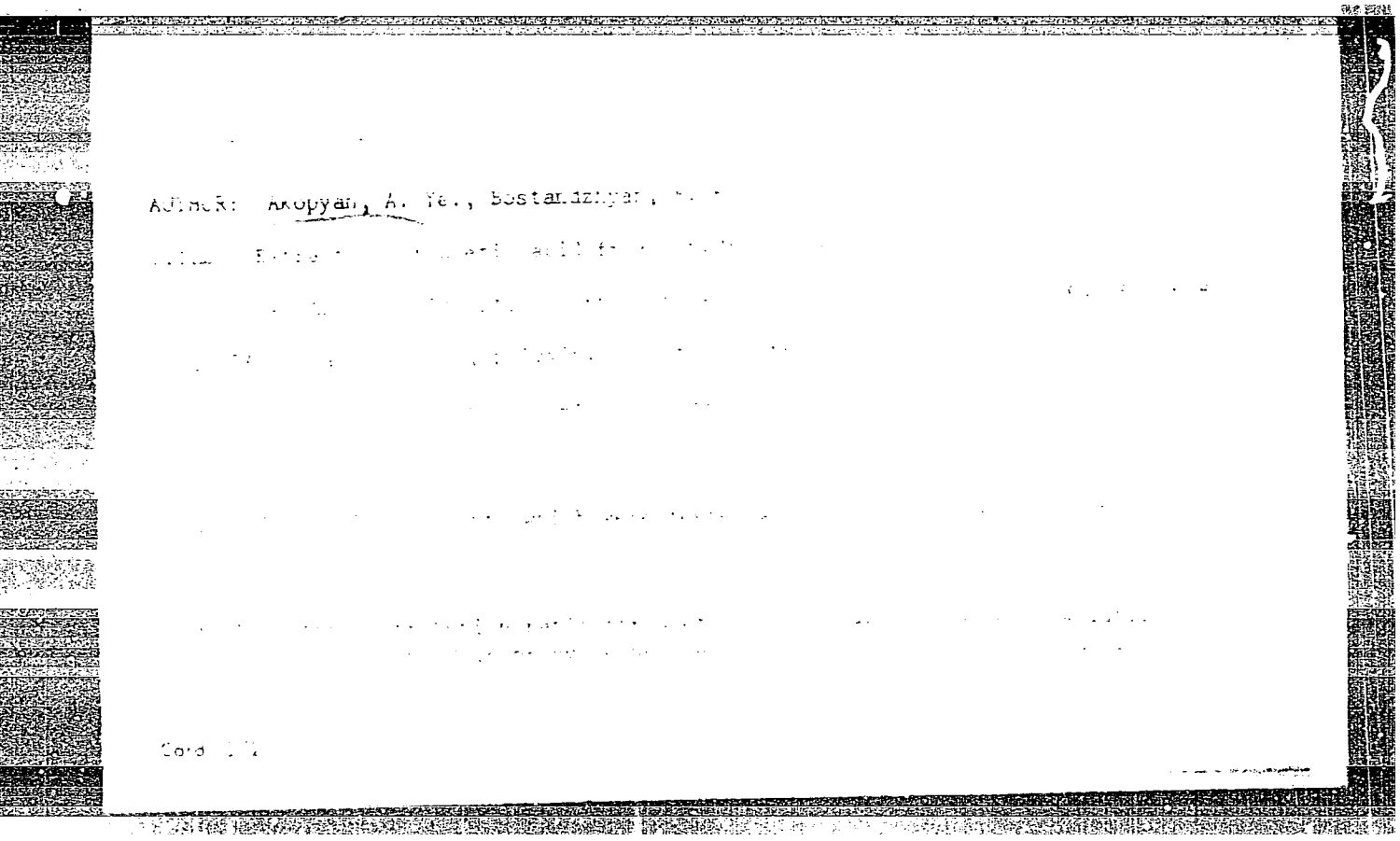
SUBMITTED: 09Mar63 DATE ACQ: 31Mar64 ENCL: 00

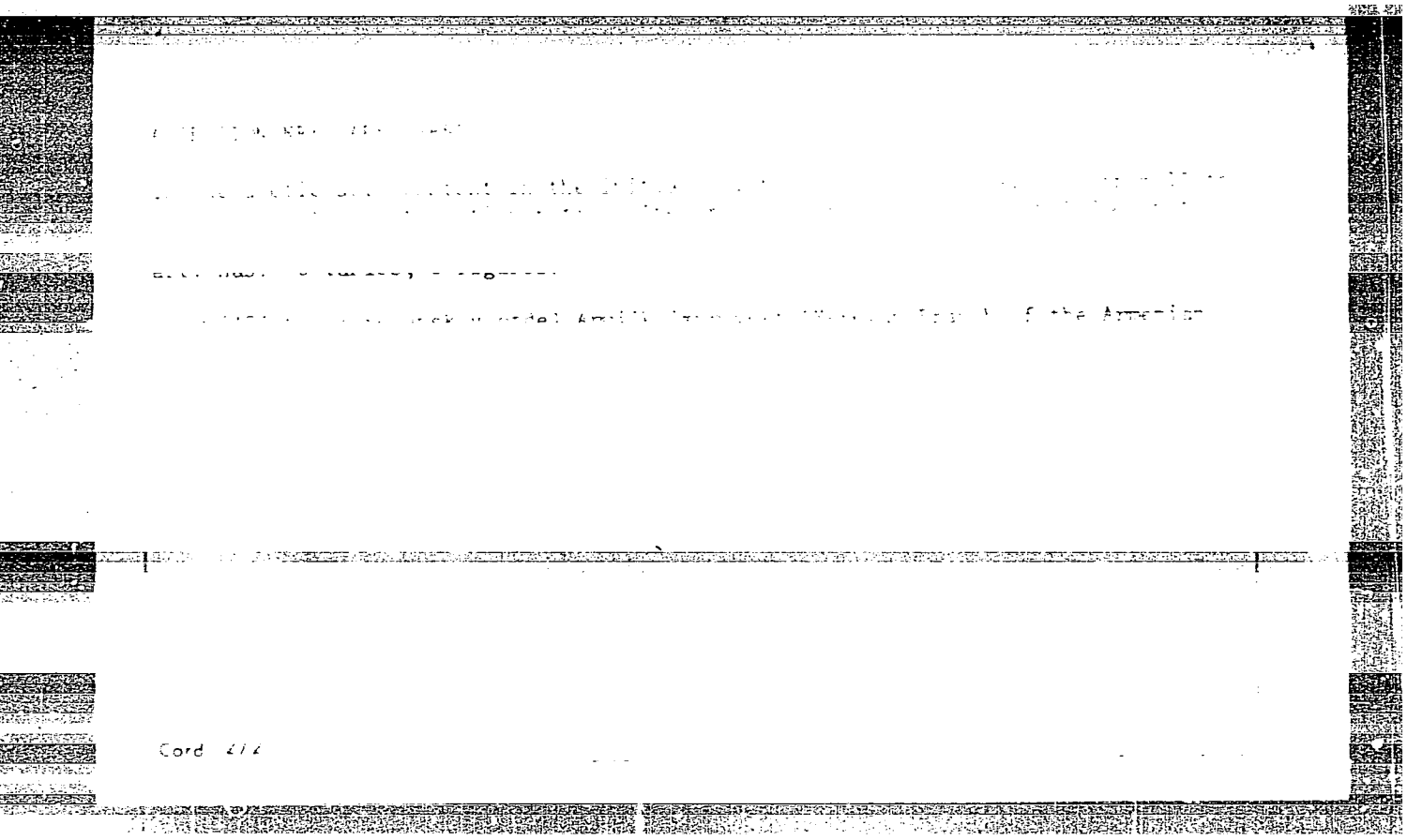
SUB CODE: CH NO REF SOV: 001 OTHER: 004

Card 2/2

AKOPYAN, A.Ye.; GRIGORYAN, L.S.; MARKOSYAN, N.A.

New system of emulsion polymerization of vinyl acetate.
Zhur. prikl. khim. 37 no.2:408-413 F '64.
(MIRA 17:9)





Card 2/2

L 16627-65 EWT(m)/EPF(c)/EPR/EWP(j)/T/EWP(v) Pc-4/Pr-4/Ps-4 WW/JH
ACCESSION NR: AP4041800 S/0080/64/037/007/1601/1605

AUTHOR: Akopyan, A. Ye.; Badalyan, V. Ye.; Sarkisyan, D. Kh.

SOURCE: Zhurnal prikladnoy khimii, v. 37, no. 7, 1964, 1601-1605

TOPIC TAGS: polyvinyl acetate, emulsion polymerization, polyvinyl alcohol production, acetalation,

ABSTRACT: The possibility of using a continuous process to obtain polyvinylbutyral using polyvinyl alcohol obtained by hydrolysis of aqueous dispersion

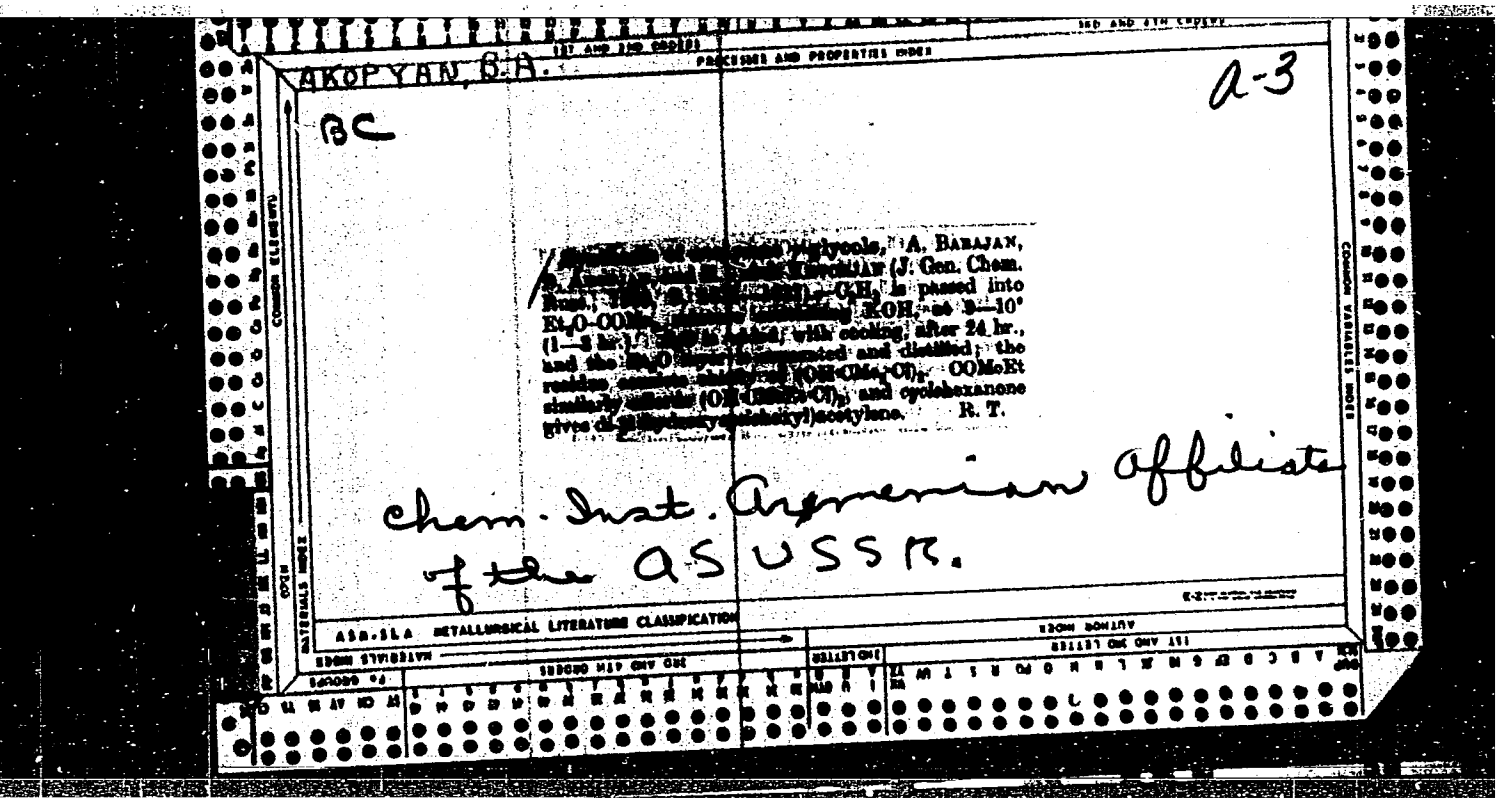
Card 1/2

L 16627-65
ACCESSION NR: AP4041800

dered product. It was found that using polyvinyl alcohol solutions more concentrated than 12% causes precipitation of the [illegible] continuous instead of a batch emulsion polymerization of vinyl acetate increased productivity 3-3.5 times. Continuous hydrolysis instead of batch alcoholysis of [illegible] also increased productivity 2-2.5 times which completely [illegible] which eliminates the [illegible] process and increases productivity [illegible]

ASSOCIATION: None
SUBMITTED: 15Oct62 ENCL: 00
SUB CODE: MT, GC NO REF SOV: 008 OTHER: 004

Card 2/2



АКОРУАН, В. А.

"Reaction of Dicyanodiamide with Some Derivatives of Benzoic Acid and with 1-Naphthoic Acid," Bull. Armenian Br. Acad. Sci. USSR, Ser. II, 1943, No. 1, 57-66 (in Russian), 66-7 (in Armenian)

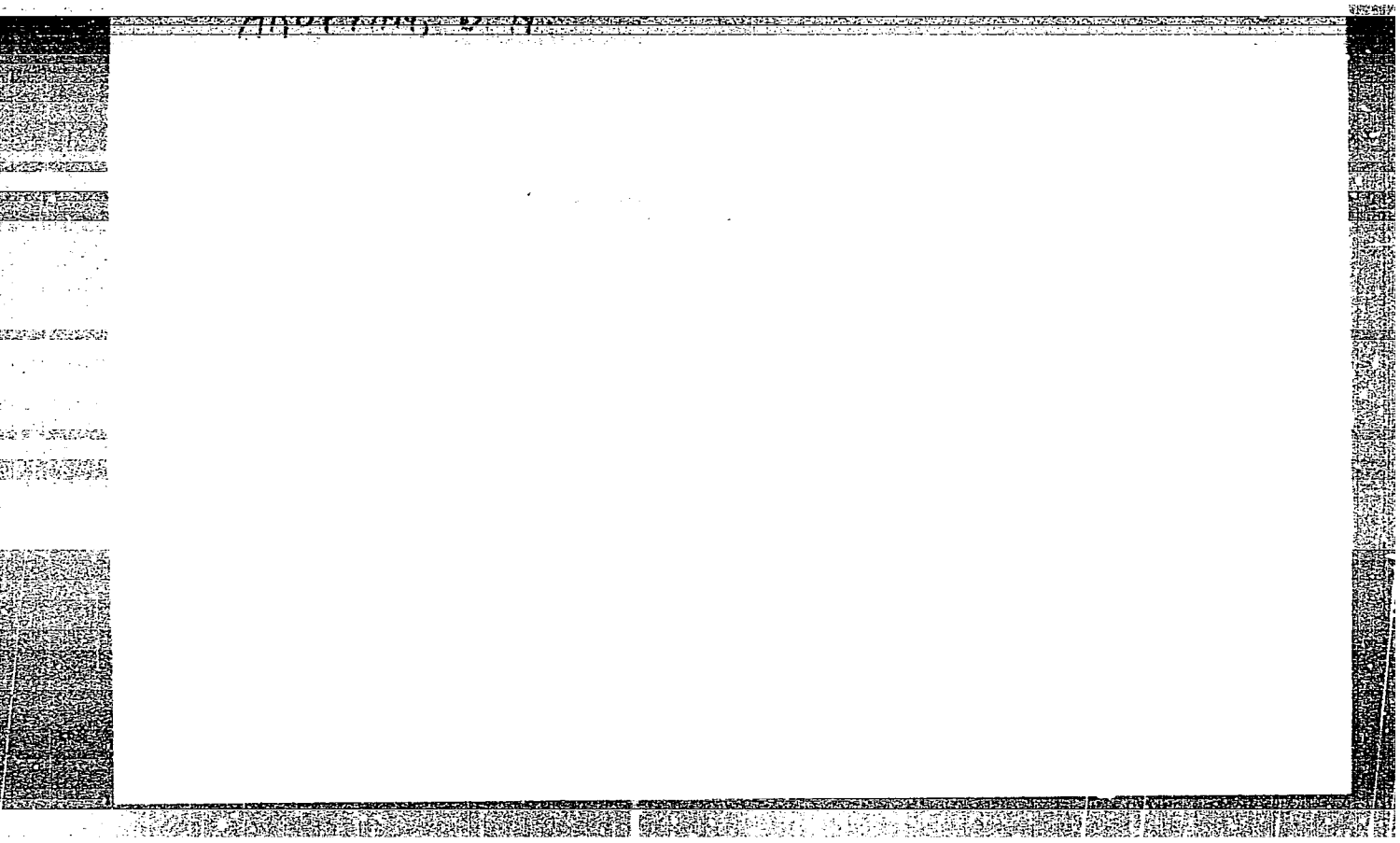
(Chem. Inst. Armenian Acad. Sci., USSR.)

AKOPYAN, B.A.

TER-KARAPETYAN, M.A., AKOPYAN, B.A., EGINYAN, O.S.

Studying the carbohydrate fractions of plant tissues with the aid of paper chromatography. Izv.AN Arm.SSR.Biol. i sel'khoz.nauki 9 no.11:27-34 N'56. (MLRA 10:1)

1. Botanicheskiy institut Akademii nauk Armyanskoy SSR i Institut zhivotnovodstva Ministerstva sel'skogo khozyaystva Armyanskoy SSR.
(Chromatographic analysis) (Plant cells and tissues)
(Monosaccharides)



APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100710013-8"

AKOPYAN, B.A., Cand Bio-Sci - (diss) "Changes of the carbon and nitrogen composition of certain plants during their growth in salty soils," Yerevan, 1958, 32 pp (Botanical Institute, AS Armenian SSR) (KL, 39-60, 114)

AKOPYAN, B.A.

AKOPYAN, B.A.

Features of nitrogen metabilism in plants growing on saline soils. Izv. AN Arm. SSR. Biol. i sel'khoz. nauki 11 no.2:63-70 F '58. (MIRA 11:3)

1. Armyanskiy nauchno-issledovatel'skiy institut zhivotnovodstva i veterinarii Ministerstva sel'skogo khozyaystva ArmSSR.
(Armenia--Plants, Effect of salts on)
(Nitrogen metabilism)

AKOPYAN, B.A.

Characteristics of carbohydrate metabolism in plants growing on saline soils. Izv.AN Arm.SSR.Biol. i sel'khoz.nauki 11 no.11:69-76 N '58. (MIRA 11:12)

1. Institut zhivotnovodstva Ministerstva sel'skogo khozyaystva ArmSSR.
(Plants, Effect of salts on) (Carbohydrate metabolism)

AKOPYAN, B.A.

Changes in the nitrogen metabolism of Arshtati-42 wheat grown in saline soils. Izv. AN Arm. SSR. Biol. nauki 14 no.5:75-80 My '61. (MIRA 14:7)

1. Botanicheskoy institut AN Armyanskoy SSR.
(ARMENIA--WHEAT) (PLANTS, EFFECT OF SALTS ON)
(NITROGEN METABOLISM)

AKOPYAN, D.; KAGAN, I.

Industrial diagrams for hot-water heating systems. Na stroi. Ros. 3 no.5:34-35 My '62. (MIRA 15:9)

1. Zamestitel' nachal'nika Glavnogo stroitel'nogo upravleniya pri ispolnitel'nom komitete Leningradskogo gorodskogo Soveta deputatov trudyashchikhsya (for Akopyan). 2. Nachal'nik proyektnogo otdela Proyektno-konstruktorskoy kontory Glavsantekhmontazha Ministerstva stroitel'stva SSSR (for Kagan).
(Hot-water heating)

AKOPYAN, D.V., inzh. (Leningrad); KAGAN, I.I., inzh. (Leningrad)

New economical central hot-water heating systems. Vod.i san.tekh. no.5:13-16 My '62. (MIRA 15:7)
(Hot-water heating)

DEMIN, Yu.M.; MKRTCHYAN, S.S.; KARAPETYAN, V.S.; OSIPOVA, E.N.; AKOPYAN, Deh.A.

Participation of γ-aminobutyric acid in the metabolism of glutamic and aspartic acids, alanine and glutamine and in neutralization of ammonia in the brain tissue. Vop. biokhim. mozg. 1:45-59 '64. (MIRA 18:9)

1. Institut biokhimii AN ArmSSR.

AKOPYAN, E.A. (Moskva)

Maximum speeds and accelerations of crank linkages. Mashinovedenie no.2:18-28 '65. (MIRA 18:8)

AKOPYAN, E.A.

Synthesis of a four-bar linkage with constrained velocity and acceleration of the driven link. Izv. AN Arm. SSR. Ser.fiz.-mat. nauk 18 no.2:117-127 '65. (MIRA 18:6)

1. Moskovskiy nauchno-issledovatel'skiy institut mashinovedeniya.

AKOPYAN, E.A. (Moskva)

Synthesis of mechanisms with a given degree of irregularity of the motion of the follower. Mashinovedenie no.3:31-37 '65. (MIRA 18:6)

AKOPYAN, E.A.; NAZARYAN, S.Ye.

Effect of organic-mineral fertilizers on the development of grapevines. Agrobiologiia no.4:583-586 Jl-Ag '65. (MIRA 18:11)

1. Armyanskiy nauchno-issledovatel'skiy institut vinogradarstva, vinodeliya i plodovodstva, Yerevan.

AKOP'YAN, G.

Make a more penetrating study of rice cultivation ("Rice, storage and processing," by E.P.Koz'mina. Reviewed by G.Akop'ian). Muk.-elev.prom. 23 no.7:32-33 Jl '57. (MLRA 10:9)

1. Glavnoye upravleniye khleboproduktov pri Sovete Ministrov Azerbaydzhanskoy SSR.

(Rice)

AKOP'YAN, G.; MURZIN, N.

Letters to the editor. Muk.-elev. prom. 28 no.9:29 S '62. (MIRA 15:10)

1. Zaveduyshchiy laboratoriyey Gosudarstvennoy khlebnoy inspektsii Glavnogo upravleniya khleboproduktov Ministerstva proizvodstva i zagotovok sel'skokhozyaystvennykh produktor Azerbaydzhanskoy SSR (for Akop'yan). 2. Starshiy inzh. Pavlodarskogo oblastnogo upravleniya proizvodstva i zagotovok sel'skokhozyaystvennykh produktov (for Murzin).

(Grain)

AKOPYAN, G.; RIVKIN, B.

Visual aids on economic disciplines. Vop. ekon. no.10:136-140 O '61. (MIRA 14:10)
(Economics—Audio-visual aids)

AKOPYAN, G., inzh.

Cam "on and off" switches. Prom.Arm. 4 no.12:64-67 D '61.
(MIRA 15:2)

1. Armyanskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta elektromekhaniki.
(Armenia—Electric switchgear)

AKOPYAN, G., inzh.

Two circuits of electronic a.c. voltage regulators. Prom.Arm. 5 no.1:29-34 Ja '62. (MIRA 15:2)
(Armenia--Voltage regulators)

AKOP'YAN, G.

A useful book. Muk.-elev. prom. 28 no.8:32 Ag '62. (MIRA 17:2)

1. Zaveduyushchiy laboratoriyey Gosudarstvennoy khlebnoy inspektsii Glavnogo upravleniya khleboproduktov Ministerstva proizvodstva i zagotovok sel'skokhozyaystvennykh produktov AzSSR.

AKOPYAN, G.A.

Experimental verification of methods for determining the strength of porous fillers. Izv.AN Arm.SSR.Ser.tekh.nauk no.4:53-62 '61. (MIRA 16:1)

(Fillers—Testing)

GORDIYENKO, A.G., kand.tekhn.nauk; ANTONENKO, I.O.; AKOP'YAN, G.A.

Nuclear electronic magnetometer with a long line. Avtom.i prib. no.3:81-82 Jl-S '62. (MIRA 16:2)

1. Institut avtomatiki Gosplana UkrSSR.
(Magnetometer)

SKUNDIN, G.I.; AKOPYAN, G.A.

Effect of transmission oil quality on the performance of gears. Standartizatsiia 27 no.2:14-19 F '63. (MIRA 16:4)

(Gearing—Lubrication)

SKUNDIN, G.I.; AKOPYAN, G.A.

Efficiency and the length of running-in the transmission of tractors. Trakt. i sel'khozmash. 33 no.6:13-16 Je '63. (MIRA 16:7)

1. Gosudarstvennyy soyuznyy nauchno-issledovatel'skiy traktornyy institut.

(Tractors—Transmission devices)

AKOPYAN, G.A.; SKUNDIN, G.I.

Studying the loss of power in the transmission gears of tractors at low temperatures. Trakt. i sel'khozmash. no.6:14-16 Je'64 (MIRA 17:7)

1. Gosudarstvennyy soyuznyy nauchno-issledovatel'skiy traktornyy institut.

SIMONOV, M.Z.; AKOPYAN, G.G.

New property of lithoid pumice. Dokl. AN Arm. SSR 36 no.1: 39-43 '63. (MIRA 17:1)

1. Institut stroitel'nykh materialov i sooruzheniy Gosstroya Armayanskoy SSR. 2. Chlen-korrespondent AN Armyanskoy SSR (for Simonov).

YUSHIN,K.P., inzhener; AKOPYAN,G.M.

The SKN-4, new machine for harvesting underdeveloped cotton. Sel'khozmashina no.10:5-6 O'55. (MLRA 8:12)

1. Gosudarstvennoye spetsial'noye konstruktorskoye byuro po khlopku
(Cotton-picking machinery)

AKOPYAN, G.M.; OGANESYAN, D.A.

New data on the age of volcanic sedimentary formations in the northern and northeastern parts of the Armenian S.S.R. Izv. AN Arm.SSR.Geol.i geog.nauki 14 no.6:33-40 '61. (MIRA 15:3)

1. Upravleniye geologii i okhrany nedr pri Sovete Ministrov Armyanskoy SSR.
(Armenia--Geological time)

ZOLOTNITSKAYA, S.Ya.; AKOPYAN, G.O.

Vitamin E content in certain plants of Armenia. Biul.Bot.sada [Eriv.] no.14:75-92 '54. (MLRA 9:8)
(TOCOPHEROL) (ARMENIA--BOTANY, MEDICAL)

AKOPYAN, G.O.

Vitamin E content of vetches in Stepanavan District.
Izv.AN Arm.SSR.Biol. i sel'khoz.nauki 11 no.11:95-98 N '58.
(MIRA 11:12)

1. Botanicheskiy institut AN ArmSSR.
(STEPANAVAN DISTRICT--VETCH) (TOCOPHEROL)

AKOPYAN, G.O.

Vitamin E concentration in corn as related to elements of mineral nutrition. Izv. AN Arm.SSR, Biol.nauki 12 no.8:73-84 Ag '59. (MIRA 12:12)

1. Botanicheskiy institut AN ArmSSR.
(TOCOPHEROL) (CORN (MAIZE)--FERTILIZERS AND MANURES))

ZOLOTNITSKAYA, S.Ya.; AKOPYAN, G.O.

Effect of ultraviolet radiation on the reproductive development and tocopherol synthesis of plants. Dokl.AN Arm.SSR 31 no.3:181-186 '60. (MIRA 13:12)

1. Botanicheskiy institut Akademii nauk Armyanskoy SSR. Predstavlena akademikom AN Armyanskoy SSR.
(Plants, Effect of ultraviolet rays on) (Tocopherol)

AKOPYAN, G. O.

Effect of the methods and duration of drying and storage on the variability of the tocopherol content of plants. Izv. AN Arm. SSR. Biol. nauki 15 no.4:29-35 Ap '62. (MIRA 15:7)

1. Botanicheskiy institut AN Armyanskoy SSR.

(TOCOPHEROL)

ZOLOTNITSKAYA, S.Ya.; AKOPYAN, G.O.; MELKUMYAN, I.S.; MURADYAN, A.A.

New plants, producents of alkaloids with tropolone ring, from the flora of Armenia. Dokl. AN Arm. SSR 41 no.3:164-170 '65. (MIRA 18:11)

1. Botanicheskiy institut AN ArmSSR. Submitted April 10, 1965.

L 27482-66 EWT(1) SCTB DD

ACC NR: AT6013452 SOURCE CODE: UR/3179/65/007/000/0183/0191

AUTHOR: Zolotnitskaya, S. Ya.; Akopyan, G. O. 35 B+1

ORG: none

TITLE: Tocopherol level shifts in relation to ultraviolet radiation under high altitude conditions

SOURCE: Vsesoyuznoye botanicheskoye obshchestvo. Problemy botaniki, v. 7, 1965. Voprosy biologii i fiziologii rasteniy v usloviyakh vysokogoriy (Problems of biology and physiology of plants at high altitudes), 183-191

TOPIC TAGS: vitamin, plant ecology, UV irradiation, wheat, agriculture crop, horticulture

ABSTRACT: The Yerevan Botanical Garden conducted a series of experiments in 1960 on representatives of the grass family (Kondik spring wheat requiring long daylight conditions) and bean family (soy bean requiring short daylight conditions) under high altitude conditions to determine whether increased tocopherol synthesis can be attributed to intensive UV radiation as suggested in the literature. Groups of experimental plants growing at different altitudes were UV-irradiated (PRK-4 mercury quartz

Card 1/2

L 27482-66

ACC NR: AT6013452 O

lamp) daily at the same time for periods of 10, 40 or 100 secs, and non-irradiated plants served as controls. Growth, development and tocopherol levels of plants were determined (methods not given). Findings indicate that tocopherol biosynthesis levels of plants largely depend on altitude and related ecological conditions. Tocopherol level shifts in plant cenoses of different altitude belts represent a one peak curve, indicating the presence of a definite altitude zone with optimal conditions for biosynthesis of the vitamin E group. These zones do not coincide for the various cenoses. Compared to steppe and meadow plant species, maximum tocopherol levels for forest plant species are found at relatively lower altitudes. The effect of UV-irradiation on growth and reproduction of short day plants as well as long day plants is comparable to the effect of a short light day. UV-irradiation markedly increases tocopherol levels largely because of the increased alpha-tocopherol levels, particularly in short day plants. The established relation between UV- irradiation and increased tocopherol levels does not exclude the possibility of other contributing factors. Further investigations of this type are necessary for planning crops with higher tocopherol levels. Orig. art. has: 9 tables.

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 012/ OTH REF: 007

Card 2/2 BLG

AKOPYAN, G. S.

USSR/Mathematics - Magnetic Spectrometer 1 Sep 51

"Concerning the New Magnetic Spectrometer," A. Alikhanyan, Corr Mem, Acad Sci USSR, A. Dadayan, N. Shostakovich, G. Akopyan, M. Dayon, Phys Inst, Acad Sci Armenian SSR

"Dok Ak Nauk SSSR" Vol LXXX, No 1, pp 37-40

Describes the new magnetic spectrometer of large resolving pwoer, set up at an altitude of 3,200 meters above sea level and intended for measuring the spectra of pulses (momenta) and masses of particles composing cosmic rays. The central part of this device is the electromagnet weighing 76 tons, in the gap of which has been erected a series of small-diam counters that permit one to det the coordinates of the particles in space. The spectra of protons obtained show that the new magnetic spectrograph actually possesses large resolving power and enables one to distinguish particles with masses less than 1,000 m_e of the proton. The results obtained indicate that the distribution trail of protons practically disappears for values of masses equal to 1,400 m_e (the mass of the proton). During the entire time of the measurement on pulses (momenta), never once was a trajectory of particles of neg sign recorded or absorved in the filters. Submitted 4 Jul 51.

PA 221T65

AKOPYAN, G.S., YAGDZHYAN, G.K., Engs.

Canals

Digging canals by breaking up the soil by mass blasting. Gidr. i mel. 4, no. 8, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952, Uncl.

AKOPYAN, G. S.

15-57-4-5428D

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 4, p 188 (USSR)

AUTHOR: Akopyan, G. S.

TITLE: Information Gathered During Construction of Irrigation Canals in the Rocky Soils of Armenian Republic (Issledovaniye i obobshcheniye opyta stroitel'stva orositel'nykh kanalov v skal'nykh gruntakh v usloviyakh Armyanskoy respubliki)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree of Candidate of Technical Sciences, presented to the Yerevansk. politekhn. in-t (Yerevan Polytechnic Institute), Yerevan, 1956.

ASSOCIATION: Yerevansk. politekhn. in-t (Yerevan Polytechnic Institute)

Card 1/1

SOV/110-59-4-2/23

AUTHOR: Akopyan, G.S. (Engineer)

TITLE: A New Series of Oil-Filled Power Transformers of Output Up to 560 kVA at 35 kV (Novaya seriya silovykh masliyanykh transformatorov moshchnost'yu do 560 kVA, napryazheniyem 35 kV)

PERIODICAL: Vestnik Elektropromyshlennosti, 1959, Nr 4, pp 4-6 (USSR)

ABSTRACT: Experimental prototypes of a new series of transformers type TSM, for 6 and 10 kV, have been developed. These transformers use cold-rolled steel for the core, oval cooling tubes and have other constructional differences from the old type TM. The losses of the new series are 20% less than the old, the transformers are smaller and the weight of oil, steel and other materials is 25 - 30% less than in the old series. The smallest transformer in the new range is 60 kVA and the largest, 560 kVA, for primary voltages of 31.5 and 35 kV and secondary voltages ranging from 230 V to 10 kV. Total losses of the old and new series transformers are compared graphically in Fig 1. The temperature rises at the top of the oil and of the windings have been reduced to 55° and 65°C respectively. A picture of the prototype 60 kVA, 35 kV transformer is

Card 1/2

A New Series of Oil-Filled Power Transformers of Output up to 560 kVA at 35 kV.

given in Fig 3. The main difference between the dimensions of the 10 kV and 35 kV transformers is in the height. The type of core construction that should be used with cold-rolled steel in distribution transformers is considered. Static screens are used to reduce transient over-voltages between turns. It is concluded that by the use of pressboard barriers clearances to earth have been much reduced. The losses and weights have been reduced by the use of cold-rolled steel. The static screens should be of lighter construction than at present.

Card 2/2

There are 3 figures, no literature references.

SUBMITTED: December 22, 1958

SOV/110-59-8-3/24.

AUTHORS: Akopyan, G.S., Pogosyan, Z.Kh, and Gantseva, T.L. Engineers.

TITLE: 6-kV and 10-kV Transformers with Aluminium Windings.

PERIODICAL: Vestnik elektropromyshlennosti, 1959, Nr 8, pp 10-13 (USSR)

ABSTRACT: It will be advantageous to use aluminium instead of copper for transformers of output up to 1800 kVA. The physical characteristics of aluminium and copper are compared in Table (1). The dimensions, weights and turns ratios of aluminium and copper windings are compared for the case when the aluminium winding is 1.46 times the height of a copper winding. If, in order to avoid excessive production costs, the cross-section of transformers with aluminium windings is maintained the same as for copper, the height of the windings will be about doubled and the copper and aluminium-wound transformers then differ only in height. Table (2) gives a comparison between designs of transformers ranging from 20 to 100 kVA with aluminium and with copper windings. The overall weight of the aluminium-wound transformers is the greater by 4 to 5%. Aluminium windings may well be used on low-voltage transformers where the insulation cost is not excessive. The relatively low mechanical strength

Card 1/3.

6-kV and 10 kV Transformers with Aluminium Windings.

of aluminium windings makes it difficult to use them for large transformers, although 70-MVA transformers with aluminium windings have been manufactured by the English Electric Company. Under short-circuit conditions transformers with aluminium windings take twice as long to heat up to 250°C as do those with copper windings. There is little difference in manufacturing procedure when aluminium is used, except in making joints and terminations. Existing jointing methods are adequate but it would be advisable to use copper terminations for the windings, and for this special equipment is required. Gas welding was used in the manufacture of experimental transformers with aluminium windings; this method of jointing is reliable but laborious. Cold welding was used to join copper terminations to the aluminium conductors, but because of the dissimilar coefficients of expansion of copper and aluminium the joints do not withstand high temperatures and are hence not well adapted to oil-cooled transformers. Experimental transformers with aluminium

6-kV and 10-kV Transformers with Aluminium Windings.

windings were made for an output of 100 kVA at 6 kV. An existing standard transformer made with hot-rolled steel, a transformer with cold-rolled steel and aluminium windings, and a transformer with cold-rolled steel and copper winding, are compared in Fig (1). It is particularly important to use cold-rolled steel in conjunction with aluminium windings. The core and coils of copper and aluminium-wound transformers are illustrated in Fig (2). The transformer with aluminium windings is much higher, although the weight of the cores is the same. Overall weights, and weights of oil, for transformers ranging from 20 to 100 kVA with copper and aluminium windings are given in Table (3).
There are 2 figures, 3 tables and 3 Soviet references.

SUBMITTED: April 13, 1959.

Card 3/3.

21(3)

AUTHORS: Akopyan, G.S., Marikyan, G.A., Kharitonov, V.M. SOV/22-12-1-6/8

TITLE: Some new Schemes for the Hodoscope (Nekotoryye novyye skhemy dlya godoskopa)

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR, Seriya fiziko-matematicheskikh nauk, 1959, Vol 12, Nr 1, pp 85-92 (USSR)

ABSTRACT: The authors describe the experiences which have been made during the last years by the mountain expedition of the FIAN of the Armenian SSR with its scientific equipment and with its operation [illegible]. Especially there are described a neon cell designed by the participators of the expedition for hodoscopes with self-quenched counters, a method for supply of several self-quenched Geiger-Müller counters, and two schemes for the hodoscopes. The authors thank E. Agasyan for the installation of the coincidence circuit, L. Grigoryan for his participation in the experiments and T.L. Asatiani for the interest in the works described.

Card 1/2

Some new Schemes for the Hodoscope SOV/22-12-1-6/8

There are 5 figures, and 3 references, 2 of which are Soviet, and 1 American.

ASSOCIATION: Fizicheskiy institut AN Armyanskoy SSR (Physics Institute, AS Armenian SSR)

SUBMITTED: August 20, 1958

Card 2/2

21(3)
AUTHOR: Akopyan, G.S. SOV/22-12-1-8/8

TITLE: Decade Counter on Germanium Triodes With Registration of the Counting on Neon Tubes (Desyatichnyy schetchik na germaniyevykh triodakh s registratsiyey otscheta na neonovykh lampakh)

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR,Seriya fiziko-matematicheskikh nauk, 1959, Vol 12, Nr 1, pp 99-102 (USSR)

ABSTRACT: The author describes the scheme and the method of operation of a decade counter with Soviet junction-type germanium triode P 6 D , where the registration is carried out on neon tubes with the aid of a Soviet P 2 A - triode. The counter has been developed by the author under assistance of V.M. Kharitonov, Doctor of Physico-Mathematical Sciences.
There are 2 references, 1 of which is Soviet and 1 American.

ASSOCIATION: Fizicheskiy institut AN Armyanskoy SSR (Physics Institute, AS Armenian SSR)

SUBMITTED: June 14, 1958

Card 1/1

USCOMM-DC-61,396

ACCESSION NR: AP4033106 S/0120/64/000/002/0050/0057

AUTHOR: Akopyan, G. S.; Dayon, M. I.; Knyazev, V. M.; Solodnikov, I. N.

TITLE: Investigation of spark chambers with a large memory

SOURCE: Pribory* i tekhnika eksperimenta, no. 2, 1964, 50-57

TOPIC TAGS: spark chamber, spark chamber telescope, Nor-Amberd telescope, air spark chamber, air argon alcohol spark chamber

ABSTRACT: A three-flat-chamber telescope installed in Nor-Amberd (Armenia) at 2,000 m altitude is described. To reduce the error in determining trajectory, one electrode in each chamber is subdivided into 5 separate glass plates covered with SnO_2 and electrically independent. Deviations of the spark from the particle path are evaluated; h-v pulse delays of 2 and 30 microsec and clearing fields of 100 v/cm are considered. The effect of over-voltages on the accuracy of path localization was experimentally studied. These conclusions are offered: (1) In the chambers filled with the air-argon-alcohol-vapor mixture, the mean-square deviation of the spark from the particle path is about 0.2 mm; it does not vary with the h-v pulse delay up to at least 30 microsec; (2) The open-air chambers have a lower accuracy of path localization; this accuracy essentially improves

Card 1/2

ACCESSION NR: AP4033106

with a higher efficiency; the mean-square deviation may be as high as 0.6 mm; (3) In the large-memory chambers, most spark deviations have a low value; still, a large number of sparks occur outside the trajectory; several rows of chambers should be used to exclude the latter case. "The authors are deeply grateful to A. I. Alikhanyan for his interest and help in carrying out this project; to M. M. Veremeyev for designing and building the mechanical part of the outfit; to V. Kh. Voly*nskiy and L. F. Klimanova for their participation in the initial phase of the project; to V. N. Bolotov, M. I. Devishev, and A. P. Shmeleva for their part in data processing and discussions; to G. A. Marikyan, K. Matevosyan, R. Yerendzhakyan, V. A. Mishchenkov, and also to the service personnel of the station for their great assistance in carrying out the project." Orig. art. has: 7 figures, 4 formulas, and 1 table.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Institute of Physics, AN SSSR); Fizicheskiy institut GKAE SSSR (Institute of Physics, GKAE SSSR)

SUBMITTED: 29Mar63 DATE ACQ: 11May64 ENCL: 00
SUB CODE: NS, PH NO REF SOV: 003 OTHER: 002

Card 2/2

L 6948-66 EWT(1)/FCC/EWA(h) GW

ACC NR: AP 5026237 SOURCE CODE: UR/0048/65/029/010/1953/1955

23
B

AUTHOR: Akopyan, G.S.; Shmeleva, A.P.

ORG: none

TITLE: On the ionizing particles accompanying approximately 170 BeV nucleons at 2 km altitude /Report, All-Union Conference on Cosmic Ray Physics held at Apatity, 24-31 August 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.29, no. 10, 1965, 1953-1955

TOPIC TAGS: Primary cosmic ray, secondary cosmic ray, spark chamber, nucleon, muon, ionization chamber

ABSTRACT: The authors have investigated the ionizing particles accompanying high energy cosmic ray nucleons at 2 km altitude in order to obtain data to aid in the interpretation of cosmic ray investigations of high energy nucleon interactions. The particles were recorded with a telescope of three 1300 cm^2 spark chambers in the 30 x 60 x 140 cm^3 gap of an electromagnet which provided a 10 kOe field. Below the telescopt was a 10 tray ionization calorimeter containing 800 g/cm^2 of iron for measuring the energy of the high energy primary. Primaries with energies from 100 to 300 BeV were observed. The exponent in the energy spectrum of these particles was 1.8±0.8. The momenta of the accompanying ionizing particles were measured with the magnetic field and the spark chambers. Particles with momenta less than 1 BeV/c

Card 1/2

L 6948-66

ACC NR: AP 5026237

were deflected out of the telescope and so could not be measured, and the curvatures of the tracks of particles with momenta greater than 30 BeV/c were too small to measure. The exponent in the energy spectrum of the accompanying particles was 1.2±0.5. The density of accompanying particles within 30 cm of the primary was 0.0023 cm^{-2} and the density within 70 cm of the primary was nearly the same. Sixty percent of the accompanying particles were negatively charged. The accompanying particles were not stopped by 6 cm of lead; it is concluded that they are muons. Orig. art. has: 3 figures.

SUB CODE: AA SUBM DATE: 00/--Oct65 ORIG. REF: 004 OTH REF: 000

Card 2/2

KAZARYAN, G.A., kand. med. nauk; ARUTYUNYAN, V.M.; ARUTYUNYAN, R.R.; AKOPYAN, I.G.

Clinical aspects and diagnosis of struma nodosa subjected to malignization. Vop. rent. i onk. 7:311-319 '63 (MIRA 17:7)

AKOPYAN, I-G.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1494
AUTHOR JASTREBCEVA,T.N., AKOPJAN,I.G.
TITLE The Investigation of the Impulse Excitation and Forcible Extinction of Quartz Oscillations.
PERIODICAL Radiotechnika, 11, fasc. 9, 39-45 (1956)
Issued: 10 / 1956 reviewed: 11 / 1956

Modern impulse technique makes use of installations which generate the electric time scale. Here the accuracy with which time is measured is determined by the stability of the generator of the scale graduations. Several works deal with the conservation of scale graduations by means of a quartz resonator. In view of the fact, however, that hitherto such works have been characterized by a number of defects, the present work is devoted to a theoretical and experimental examination of the impulse excitation of quartz oscillations as well as of some methods of forcible extinction. A complete solution for excited oscillations was found for the case in which a signal with rectangular impulse acts upon quartz. The optimum duration of the impulse, in the case of which the excited oscillations have the greatest amplitude and the lowest number of higher harmonics, is determined. Four methods of forcible extinction of quartz oscillations were investigated: a) furnishing quartz with an active shunt-resistance, b) extinction in a scheme with negative feedback coupling, c) extinction by means of an equilibrium scheme, d) impulse extinction. It was found that, with the help of the two first mentioned methods, the extinction of the quartz oscillations can be raised by only one order. Computations and experiments carried out by means of an equilibrium scheme have

AKOPYAN, I.G.; STRATONOVICH, R.L.

Establishment of synchronism in a self-oscillator in the presence of of fluctuation noise. Nauch. dokl. vys. skoly; fiz.-mat. nauki no.1: 162-166 '58. (MIRA 12:3)

1.Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Oscillators, Electron-tube)

AKOPYAN, I.G.; STRATONOVICH, R.L.

Establishment of amplitude in a synchronized self-oscillator in the presence of fluctuation noise. Nauch. dokl. vys. skoly; fiz.-mat. nauki no.1:167-172 '58. (MIRA 12:3)

1.Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Oscillators, Electron-tube)

ARUTIAN, I. G. (MGU, Moscow)

"The Influence of Fluctuation Noise on the Self-Oscillator Synchronization."

report presented at the All-Union Conference on Statistical Radio Physics, Gor'kiy, 13-18 October 1958. (Izv. vyssh uchev zaved-Radiotekh., vol. 2, No. 1, pp 121-127) COMPLETE card under SIFOROV, V. I.)

9(3)

AUTHORS: Ivanov, V.N., and Akopyan, I.G. SOV/162-58-3-2/26

TITLE: The Determination of Statistical Characteristics of Random Processes by Means of an Electron-Beam Tube (Opredeleniye statisticheskikh kharakteristik sluchaynykh protsessov s pomoshch'yu elektronno-luchevoy trubki)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Radiotekhnika i elektronika, 1958, Nr 3, pp 13-19 (USSR)

ABSTRACT: The author explains a simple method for measuring the correlation factor and other moments of static random processes by means of an electron beam tube. A similar method was already described by L.W. Orr [Ref 1] and A. Moles [Ref 2]. Measuring the correlation factor may be simplified by using parameters of the laws of distribution which may be easily determined. This method is based on the parameters of one-dimensional laws of distribution, which are suitable for arbitrary static random processes. The application of the electron beam tube permits obtaining

Card 1/3

the statistic characteristic of random processes in a simple manner, while other methods require complicated equipment for the same purpose, for example, for measuring the FM signal phase fluctuation. The method was tested experimentally and figure 2 shows the test arrangement. The experimental apparatus consists of one 10-75 kc noise generator, one 0-20 microsecond delay line, one phase inverter, one summator, one oscillograph, one sensitive photocell FSK-1 and one microammeter. The oscillograph has one-dimensional random scanning and is used in connection with an optical wedge. For establishing the accuracy of the method, additional investigations are necessary; however, according to results available at the present time, it may be predicted that the method will be applicable under laboratory conditions in many practical cases. There are 2 dia-

The Determination of Statistical Characteristics of Random Processes by Means of an Electron-Beam Tube SOV/162-58-3-2/26

grams, 1 graph, and 4 references, 1 of which is English, 1 French and 2 Soviet.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta (Physics Department of the Moscow State University)

SUBMITTED: May 10, 1958

Card 3/3

AKOPYAN, I. G., Cand of Phys-Math Sci — (diss) "Investigation of the Influence of the Fluctuating Disturbances on the Processes of Synchronization of a Lamp Generator," Moscow, 1959, 8 pp (Moscow State Univ im Lomonosov) (KL, 6-60, 120)

KL 3/0

SOV/120-59-1-37/50

AUTHOR: Akopyan, I. G.

TITLE: A Method for Oscillographic Determination of the Distribution Laws of Random Quantities (Sposob ostsillograficheskogo izmereniya zakonov raspredeleniya sluchaynykh velichin)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 1, p 137 (USSR)

ABSTRACT: To measure one-dimensional distribution laws of stationary random processes one normally uses discriminators. The oscillographic method (Ref 1) is more convenient in the case of processes which do not contain in their spectra an excessive amount of low frequency components. The advantage of this method is great simplicity and the fact that the distribution law can be recorded continuously instead of measuring its separate values. The principle of the method is as follows. If a random signal $\xi(t)$ is applied to one of the plates of a CRO then a one-dimensional random sweep will appear on the screen. If $\xi(t)$ is a stationary random process then the average brightness on the screen at points along this sweep is proportional to the probability density at the given point. If such an oscillogram is photographed the required distribution law can be determined with the help of a densitometer. However, non-linear properties of photographic materials complicate the method. It is simpler to record the values of the

Card 1/3

A Method for Oscillographic Determination of the Distribution Laws of Random Quantities

average brightness of the screen by placing a photomultiplier with a suitable screen and a small aperture against the various points on the screen. The output of the photomultiplier is then proportional to the brightness. The present author has developed a method which is fully automatic and makes the whole procedure much quicker. In this method two CRO's are used in parallel. The various points along the random sweep are brought against the aperture of the photomultiplier automatically by means of a suitable circuit while the output of the photomultiplier is applied to the vertically deflecting plates of the second CRO in which the horizontal sweep is synchronized with that of the first CRO. In this way a graph of the distribution law is obtained directly on the screen of the second CRO and may be photographed. Fig 1 shows a diagram of the circuit and Fig 2 a typical distribution law

SOV/120-59-1-37/50

A Method for Oscillographic Determination of the Distribution Laws of Random Quantities

obtained with it. There are 2 figures and 1 Soviet reference.

ASSOCIATION: Fizicheskiy fakul'tet MGU (Department of Physics of the Moscow State University)

SUBMITTED: January 21, 1958.

Card 3/3

9.3260

AUTHOR: Akopyan, I.G.

SOV/141-2-3-11/26

TITLE: Experimental Investigation of the Influence of the Fluctuation Noise on the Synchronisation Processes in an Oscillator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1959, Vol 2, Nr 3, pp 408 - 419 (USSR)

ABSTRACT: The problem was investigated theoretically by a number of authors (Refs 1-5). In the following, the processes of continuous or pulse-type synchronisation in the presence of fluctuation noise were investigated experimentally. The investigations were carried out on a low-frequency vacuum-tube oscillator with a tuned circuit in the grid. The system operated at 40 kc/s. A synchronising signal (continuous or pulsed) and the noise were applied directly to the resonant circuit. For this purpose, small resistances were introduced into the inductive and capacitative branches of the circuit and the signal and noise were applied to the resistors by means of special cathode followers, having output

Experimental Investigation of the Influence of the Fluctuation Noise on the Synchronisation Processes in an Oscillator

resistances lower than 10 Ω. The noise generator consisted of a noise diode and a three-stage low-frequency amplifier. The frequency characteristic of the amplifier was such that the maximum amplification occurred at 40 kc/s and its bandwidth was about 50 kc/s. The fluctuations could therefore be assumed to be in the form of white noise. The experimental equipment permitted measurement of the unidimensional phase and amplitude distribution laws and the determination of the average oscillation frequency and its deviation from the synchronising signal. The phase fluctuations were measured by means of the equipment shown in the block schematic of Figure 1. The synchronising signal was applied to the investigated oscillator. Simultaneously, the synchronising signal was applied to a Schmitt trigger (via a phase inverter) which operated twice during a period and produced a square wave form, whose edges corresponded to the zeros of the signal. The square wave form was differentiated and the positive "spikes" so

Experimental Investigation of the Influence of the Fluctuation Noise on the Synchronisation Processes in an Oscillator

obtained were applied to a blocking oscillator. The output pulses of the blocking oscillator triggered discharge tube which produced a sawtooth wave form having a good linearity and a short flyback. The sawtooth was applied to the γ input of an oscillograph. The voltage from the resonant circuit of the oscillatorwas applied, via the cathode follower, to another Schmitt trigger which operated in a manner described above. The spikes obtained from the resulting rectangular wave form were applied to the Z input of the oscillograph and provided brightness markers on the sawtooth voltage. In the absence of noise, the oscillatorwas synchronised and the brightness markers always fell in the same phase of the sawtooth wave form; consequently, the whole set of the brightness markers lay on a horizontal line, whose position was determined by the constant phase shift φ_o (Figure 2a). In the presence of noise the phase shift varied randomly and deviated from φ_o. This is illustrated in Figure 2b. The phase distribution

Experimental Investigation of the Influence of the Fluctuation Noise on the Synchronisation Processes in an Oscillator

law $w(\varphi)$ was also measured by employing a cathode-ray tube with a photo-resistor (Refs 8-10). The photo-resistor was fitted with a diaphragm and situated in front of the screen of the tube; this permitted the determination of the average brightness of the markers at various levels of the sawtooth wave form. A block schematic of the measuring equipment for $w(\varphi)$ is shown in Figure 3. The measurement of the amplitude fluctuations was effected by the equipment of Figure 1, except that the signal of the investigated oscillator was applied directly to the Y input of the oscillograph and to a quarter-wave delay line, from which the signal was applied to a Schmitt trigger; the rectangular wave form from this trigger was differentiated and then applied to the Z input of the oscillograph. An example of the amplitude fluctuation oscillogram is shown in Figure 4b. The transients of the phase and amplitude were also investigated by means of the same equipment,

 except that the synchronisation was effected by means of

Experimental Investigation of the Influence of the Fluctuation Noise on the Synchronisation Processes in an Oscillator

rectangular radio pulses. Examples of the phase transients in the absence of noise are shown in Figure 5a; the same process in the presence of noise is illustrated in Figure 5b. The frequency of the oscillator was measured by converting its wave form into pulses which were applied to an electronic counter. This was gated (opened or blocked) by means of a quartz-crystal chronometer. The experimental data were compared with the calculated results obtained by employing the results of a number of works (Refs 3-7). In the analysis, it was assumed that the system could be described by Eqs (1), provided the conditions defined by Eq (2) were fulfilled. The notation in Eqs (1) and (2) is as follows:

A and φ are the amplitude and the phase of the oscillations;

A_o is the amplitude of the oscillations in the absence of noise or synchronising signal;

Experimental Investigation of the Influence of the Fluctuation Noise on the Synchronisation Processes in an Oscillator

δ is the linear part of the increment of the system;

$\Delta = \omega_0 - \omega$ is the detuning;

$\varkappa(\omega)$ is the spectral density of the noise, while

$\zeta_1(t)$ and $\zeta_2(t)$ are two auxiliary independent random functions having zero average values.

The conditions to be fulfilled by the synchronising signal and the noise are defined by Eqs (3) and (4). The phase fluctuation is described by Eq (5), where $D = \lambda A_0^2 \Delta$, $D_0 = \lambda A_0^2 \Delta_0$ (where $\Delta_0 = \omega E/2A_0$) and I_{iD} is the Bessel function of the imaginary argument. The calculated values of $w(\varphi)$ are shown in Figure 7a. The amplitude distribution law is expressed by Eq (6), where N is the normalising factor. In practice, however,

Experimental Investigation of the Influence of the Fluctuation Noise on the Synchronisation Processes in an Oscillator

it is only possible to measure the distribution function defined by Eq (7). The values of this function are plotted in Figure 7b. The phase deviation is expressed by Eq (10); the values of this function are shown graphically in Figure 8. On the basis of the experiments, it was found that at large values of the signal-to-noise ratio and at small detunings, the phase distribution obeys the normal law. The author expresses his gratitude to V.V. Migulin for suggesting the subject and directing the work. There are 9 figures and 11 references, 1 of which is English and 10 are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: December 29, 1958

S/109/62/007/008/002/015
D409/D301

6.9400

AUTHORS: Akopyan, I.G. and Landa, P.S.

TITLE: Overtone synchronization of self-oscillations in the presence of noises

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 8, 1962, 1285-1293

TEXT: A Thomson-type self-oscillating system is considered. The system is under the influence of a harmonic external force whose frequency is almost double the frequency of the free oscillations, and of a noise whose spectral density is concentrated in the frequency range of the synchronizing signal. Assuming that the correlation time τ_{cor} of the random noise $\xi(t)$ is small, it is possible to consider the amplitude and phase of the oscillations as Markov processes and to describe them by Einstein-Fokker type equations. Only stationary solutions of these equations are considered. From the solutions it is evident that the amplitude distribution in the case of overtone synchronization differs substantially from that of funda-

Card 1/3

Overtone synchronization ...

mental-frequency synchronization, whereas the phase distribution does not differ. Formulas are derived for the amplitude- and phase dispersions of the output signal. Conclusions: An oscillator, synchronized with a harmonic external force, whose frequency is double that of the oscillator, behaves like a narrow-band nonlinear filter. The phase fluctuations at the oscillator output do not depend on the form of the nonlinear filter-characteristic, but are entirely determined by the signal-to-noise ratio D_s at the input, and by the magnitude of mistuning. The magnitude of the phase fluctuations in the case under consideration coincides with that in an oscillator, synchronized with the fundamental frequency. Hence, in this respect, resonance of the second kind does not offer any advantage. On the other hand, overtone-synchronization is advantageous with respect to reducing the amplitude fluctuations. These fluctuations depend on the form of the nonlinear characteristic. From the graphs and the formulas given, it is evident that the amplitude dispersion about its mean value is considerably smaller than in the case of fundamental-frequency synchronization; in the particular case of optimum excitation, the difference is of the order $D_c \gg 1$. Thus, it is con-

Overtone synchronization ...

venient to use synchronized oscillators, in receivers with amplitude limiting, as narrow-band nonlinear filter-limiters. The above results are also of interest in estimating the fluctuations in frequency-divider circuits. There are 2 figures.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova (Physics Division of Moscow State University im. M.V. Lomonosov)

SUBMITTED: November 29, 1961

4

AKOPYAN, I.G.

Establishment of a synchronous mode of operation in an electron-tube oscillator in the presence of noise. Radiotekh. i elektron. 11 no.1:32-41 Ja '66.
(MIRA 19:1)

1. Submitted August 21, 1964.

L 17121-65 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6018051 SOURCE CODE: UR/0020/66/168/003/0547/0549

AUTHOR: Akopyan, I. Kh.; Zlatkin, L. B.

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of Sciences, SSSR (Fiziko-tekhnicheskiy institut Akademii nauk SSSR); Leningrad State University im. A. A. Zhdanov (Leningradskiy gosudarstvennyy universitet)

TITLE: Optical reflection spectra of single-crystal $ZnSiP_2$

SOURCE: AN SSSR. Doklady, v. 168, no. , 1966, 547-549

TOPIC TAGS: zinc compound optic material, light reflection, absorption edge, spin orbit interaction, energy band structure, chemical bonding, light polarization, valence band, OPTIC SPECTRUM

ABSTRACT: This is a continuation of earlier work by one of the authors (Zlatkin, IV Vsesoyuzn. soveshch. po fotoelektricheskim yavleniyam v poluprovodnikakh, Tez. dokladov, Odessa, 1965, p. 46 and elsewhere), who synthesized $ZnSiP_2$ and investigated some of its physical properties, photoconductivity, and absorption coefficient. The present paper is devoted to a study of the reflection spectra beyond the edge of their fundamental absorption, in order to obtain data on the band structure of these crystals. Single optical reflection was measured with apparatus consisting of a double monochromator (DMR-4), photoelectric recording apparatus, and a hydrogen lamp. The reflection spectra were measured at small angles of incidence, ~10°, and at a temperature of 300K. A Glan prism with air layer was used to investigate the dependence of

Card 1/2 UDC: 548.0: 535

ACC NR: AP7005861 SOURCE CODE: UR/0181/66/008/012/3643/3646

AUTHOR: Akopyan, I. Kh.; Grigor'yan, S. S.; Yakovlev, A. S.

ORG: Leningrad State University im. A. A. Zhdanov (Leningradskiy gosudarstvennyy universitet)

TITLE: Luminescence of $ZnSiP_2$ crystals

SOURCE: Fizika tverdogo tela, v. 8, no. 12, 1966, 3643-3646

TOPIC TAGS: zinc compound optic material, luminescence spectrum, absorption edge, line broadening, ir absorption, absorption spectrum, exciton

ABSTRACT: The authors tested the low-temperature luminsecence of $ZnSiP_2$ crystals obtained by the gas-transport reaction method, in order to compare their properties with those of III-V semiconductors. The temperature range was 42 - 77K and the excitation source was a mercury lamp. The luminescence spectra were obtained in a range 5500 - 6700 Å using an ISP-51 spectrograph (30 Å/mm dispersion). The crystals had a sharp absorption edge. The spectrum consists of two groups of narrow lines, each containing a series of equidistant intense lines broadening toward the long-wave side. The wavelength, frequencies, and possible interpretations of the lines are given. Measurements were also made of the infrared absorption spectrum in the 50 - 250 cm^{-1} region, where two absorption bands were observed. When the temperature was raised from 4.2 to 77K, the intensity of the short-wave band of luminescence dropped almost to zero, whereas the intensity of the long-wave band increased. It is pro-

ACC NR: AP7005861

posed that the line luminescence is due to radiative recombination of the bound excitons, in which both purely electronic transitions and transitions in which one or several phonons are produced participate. The presence of two line groups may indicate the presence of two exciton complexes. The authors thank Ye. F. Gross for continuously guiding the work, A. Sh. Karamyan for plotting the infrared spectrum, and E. Osmanov for supplying the $ZnSiP_2$ crystals. Orig. art. has: 2 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 06Jun66/ ORIG REF: 002

Card 2/2

AKOPYAN, I.M., kand.med.nauk

Rate of tuberculosis infection in adults of Stepanovan district, Armenian SSR, in 1956-1957 [with summary in French]. Probl.tub. 36 no.2:12-14 '58 (MIRA 11:5)

1. Glavnyy vrach Stepanavanskogo protivotuberkuleznogo dispansera.
(TUBERCULOSIS, PULMONARY, prev. and control
mass survey in Russia (Rus))

AKOPYAN, I.M., kand.med.nauk

Tuberculous infection in children and adolescents in Stepanavan District, Armenia, 1945-57. Probl.tub. 37 no.3:9-13 '59. (MIRA 12:6)

1. Glavnyy vrach Stepanavanskogo protivotuberkuleznogo dispansera.
(TUBERCULOSIS, statist.
in Russia, in child. & adolescents (Rus))

AKOPYAN, I.M., kand.med.nauk

Duties of medical personnel of Stepanavan District, in connection with control of tuberculosis. Probl.tub. 37 no.5: 3-6 '59. (MIRA 12:10)

1. Glavnyy vrach Stepanavanskogo protivotuberkuleznogo dispansera.
(TUBERCULOSIS - prevention & control)

AKOPYAN, I.M.

Comparative evaluation of methods for detecting allergy following the vaccination of schoolchildren with BCG vaccine. Zhur. eksp. i klin. med. 3 no.4:49-56 '63 (MIRA 16:12)

1. Stepanavanskiy protivotuberkuleznyy dispanser.